

Using OS/390 Oracle8i for Shuttle Data Reconfiguration

Erika Black

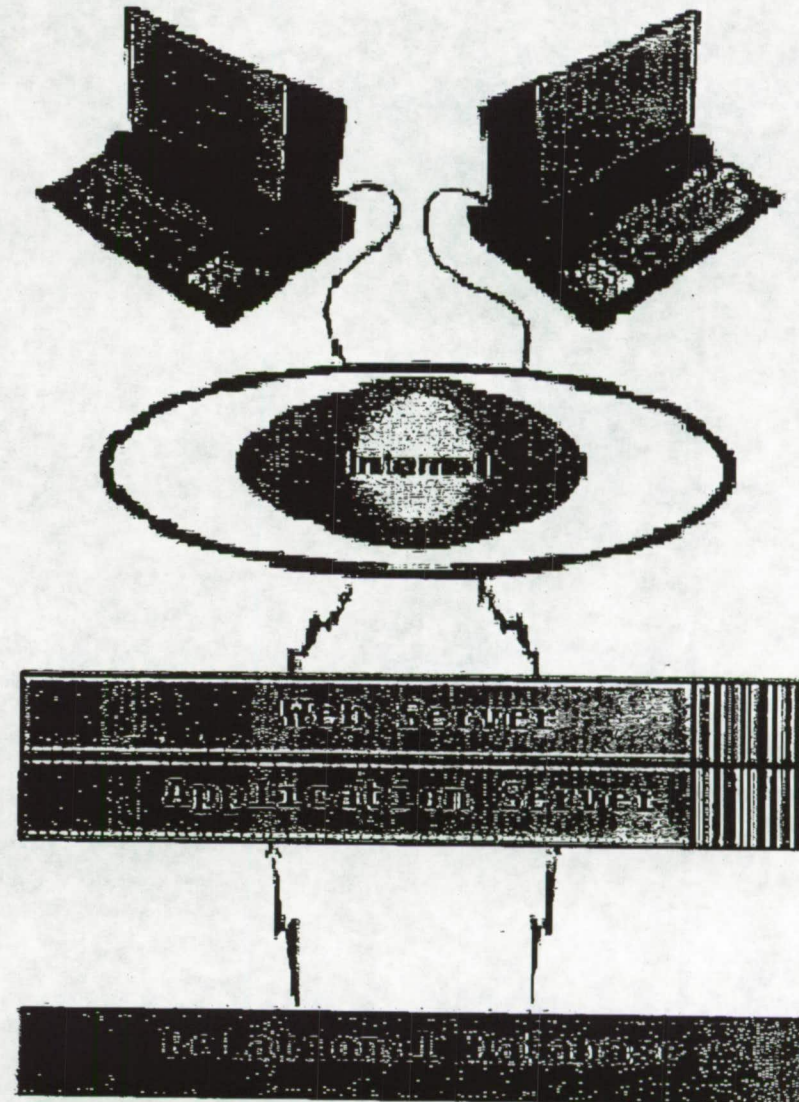
March 20, 2001

Application Background

- **Application – Payload Integration Tool (PIT)**
- **Purpose**
 - **Provide Configuration Management on delivered payload data**
 - **Validate data**
 - **Generate integrated products for down stream processors**
- **Re-engineered from IMS application**
- **Restriction**
 - **Must fit with existing legacy applications (process OS390 PDS)**
 - **Must adhere to strict security measures**
- **Data Files**
 - **Input: PDS from Legacy System; XML from new system**
 - **Output: PDS for delivered products**
- **Massive Data Movement/Manipulation**
- **Size – 2M to 10M per flight**

Architecture

- Three-tiered Web Application
- Client - any Browser
- Middle (Application/Web Server)
 - WebSphere
 - Independent NT machine behind local firewall
- Database
 - Oracle8i on OS390
- Application Development Tools
 - IBM Visual Age (Code)
 - Rational Rose (Design)
 - Rational Performance Suite (Test)



System Setup

- OS/390 2.09.00
- Oracle 8.1.5
- WebSphere/VisualAge – 3.5
- NT – Service Pack 6A

Features

- **Data Loaded into Intermediate Tables**
 - To satisfy verification requirements
 - XML (JAR file) => Java XML Parser => Intermediate Tables
 - PDS => SQL*Loader => Intermediate Tables
- **Data Merged from Intermediate into Master Tables**
- **All PIT data manipulation are performed on Master Tables**
- **Process Execution**
 - Using Oracle as the “middle man” between Application Server and OS390
 - PDS data are copied in/out of USS using batch JCL
 - Continuously running processor on OS390 to pick up batch job in the queue, submit job, and update completion code
- **Data Cleanup**
 - Scheduled nightly DBMS Jobs to clean up data marked for deletion
- **Lots of PL/SQL stored procedures/functions**

Features (continued)

- Generated products are stored in tables to allow viewing and writing to file system without re-generating
- Query results are generated in XML to provide wide range of data distribution and are formatted into HTML and PDF documents

Development Process

- Utilizing RUP (Rational Unified Process) with existing processes
 - Build a little, test a little
 - Implement the most risky, the most complicated, (requirements) the least stable UseCase first
- The Good
 - UseCase Specification forces user involvement
 - Allowed requirements/design/code to mature ALMOST concurrently
 - Early verification catches error early in the cycle
- The Ugly
 - Frustration level very high for first iteration

Other Project Data

- Length – 21 months
- Completed software capabilities builds
- In User Acceptance Test phase

Wish List

We wish...

- BFILE feature worked in Oracle 8.1.5 (supposed to be in 8.1.7)
- Oracle would provide OCI support for USS
- Stored procedure supports Java (supposed to be in 8.1.7)
- UTL_FILE supports NFS mounted data files

Acronyms

NFS	Network File System
DBMS	Data Base Management System
HTML	Hyper-Text Markup Language
IMS	Information Management System
JAR	Java ARchive
JCL	Job Control Language
OCI	Oracle Call Interface
PDS	Partitioned Data Set
SQL	Standard Query Language
USS	Unix System Server
XML	eXtended Markup Language

Author (s) Erika Black		Div./Dept 63500	Mailcode USH-635L	Phone No. 281-282-2669
This is a: <input type="checkbox"/> Presentation <input type="checkbox"/> Abstract of material to be disclosed/published <input checked="" type="checkbox"/> In the United States <input type="checkbox"/> In a foreign country			Publication/Presentation date: 03-19-2001	
Sponsoring Group: (List Address-City, State, Country) MVS Oracle Special Interest Group 6934 Carnwood Rd. Madison, WI 53719 USA			This Material is: <input checked="" type="checkbox"/> Unclassified <input type="checkbox"/> Classified	
			Security Classification	
			Is recipient or audience cleared to receive classified information? <input type="checkbox"/> Yes <input type="checkbox"/> No	
			If presented in the U. S. will foreign nationals be in attendance? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
1a. Does the material include or was this material derived from information developed under Government contract? (If yes, complete e. below) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			1b. Does this material include or was this material derived from any information obtained from the Government or others and identified as military critical technology or technical data controlled by DOD Directive 5220.24 and 5230.25 restricting disclosure of unclassified technical data? (If Yes, complete e. below) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
1c. Does this material relate to any Government programs being conducted at any other USA locations or by other contractors or agencies of the Government? (If Yes, complete e. below) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
1d. Does this material include any technical data relating to equipment on the Munitions List and subject to export control by the Department of State? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
1e. Program Name Space Flight Operations Contract		Contract Number NAS9-20000	Security Classification of Contract unclassified	Contract Monitor Darrel Stamper
2. If any of the answers to 1a, 1b, or 1c above is yes, has the sponsoring Government Agency reviewed and approved this material for publication/presentation? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, Approving Agency: NASA JSC Date of Approval: 				
3. Was this material developed under or does this material relate to a company-sponsored program? If Yes, complete the following: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
Program Name		Security Classification of Contract		GO/SA No.
4. If this has been identified as Unclassified material, have you extracted data from unclassified pages of classified material? If Yes, complete the following. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
Name of Material or Source		Classification		Pages Used
5. Are slides, graphs, charts, etc. to be used in connection with this material, which contain data not shown in the manuscript <input type="checkbox"/> Yes, furnish copies <input checked="" type="checkbox"/> No				
6. Does any portion of this material represent a significant advancement in the State of the Art or contain speculations of future applications? If Yes, identify page(s) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
7. Does material discuss capabilities of another USA division or another company. (If yes, complete below): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
Division(s) Company (s)		Mentioned Page (s)		
8. Does material contain Proprietary, Company Restricted, or Company Official data? (If Yes, explain in Remarks block 15) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		9. Technical review for content, clarity, and significance has been completed. Name/Title/Date: _____		
10. (To be answered by functional division head or delegate) Does the subject matter involve points on which: a. Our customers may be sensitive <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No b. An unresolved customer policy or issue is pending <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No c. The company is sensitive <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
If any part is answered "Yes", note briefly points and page number (s) of text involved below. d. If this paper is accepted for publication in a journal or periodical, will the Company incur any special publication costs? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If "Yes", state journal's page rate or estimated cost.				

11. PUBLIC RELATIONS/COMMUNICATIONS (Name/Title/Date)

J. Can

12. INDUSTRIAL SECURITY (Name/Title/Date)

James L. Hatfield Manager 02/27/01

13. EXPORT COMPLIANCE OFFICE (Name/Title/Date)

Hawkins 2/9/01.
Lead, Export Compliance Coordinator

14. PATENTS - LEGAL (Name/Title/Date)

Rochelle H. Cooper Received
2/27/01

15. REMARKS

Contact Jess Can about
using logo with
trademark ®.